

POWERED BY **Dialog****METHOD AND SYSTEM FOR FACILITATING A PURCHASE  
PROCEDE ET SYSTEME FAVORISANT L'ACTE D'ACHAT****Patent Applicant/Assignee:**

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**English Abstract:** A method and system for facilitating a purchase of a good or a service is provided in which a transaction facilitation system is communicatively linked to a wireless user's provider and sends messages over a data channel to the wireless user that show up as part of a menu on the user's wireless device. The menu lists one or more goods or services that the wireless user may request at his convenience. In response to the user selecting an item from the menu, the wireless device creates a message, such as an SMS digital message, which represents the request. The wireless device then transmits the request back to the transaction facilitation system, which then sends a corresponding order for the good or service to a merchant who can fulfill the order. The order message may be sent to

the merchant via wireless data channel or by a wired network link, such as a wide-area network. The user may then, for example, pick up the good or receive the service.

**French Abstract:** La presente invention concerne un procede et un systeme destine a favoriser l'acte d'achat de bien ou de service. En l'occurrence, un systeme d'execution des transactions, communiquant avec un fournisseur des utilisateurs radio envoie des messages a l'utilisateur radio via un canal informatique, lequel message s'affiche comme partie integrante d'un menu de l'appareil de radio de l'utilisateur. Le menu enumere des biens ou des services que l'utilisateur de la radio peut demander a sa guise. Dans la mesure ou l'utilisateur a selectionne une rubrique dans le menu, l'appareil de radio cree un message, notamment un message numerique de type mini-message SMS, lequel message represente la demande. L'appareil de radio renvoie alors la demande au systeme d'execution des transactions, qui reagit en envoyant un bon de commande correspondant au bien ou au service a un commercant capable de satisfaire la commande. Le message bon de commande peut etre adresse au commercant via un canal informatique radio, ou par une liaison de reseau filaire tel qu'un reseau longue distance. L'utilisateur peut alors proceder a l'enlevement de la marchandise ou recevoir le service.

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#### **Detailed Description:**

METHOD AND SYSTEM FOR FACILITATING A PURCHASE  
CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No.

60/149,648 for a Method and System for Facilitating a Purchase, filed August 18, 1999 and incorporated by reference in its entirety.

#### **TECHNICAL FIELD**

This invention relates generally to electronic commerce and more specifically to a method and system for facilitating the purchase of a good or service in conjunction with a wireless service.

#### **BACKGROUND**

The growth of the wireless communications industry and the entry of several major companies has created tremendous competition for mobile phone subscribers.

With advancements in wireless technology, it is becoming increasingly difficult to distinguish among the various mobile phone services in regard to voice quality. Thus, mobile phone service providers are being increasingly forced to compete on price, with mobile phone airtime being reduced to a fungible commodity.

However, advances in wireless communications have also created new opportunities for mobile phone service companies to offer separate data channels to their subscribers in addition to the standard voice channels. One type of service that takes advantage of these separate data channels is a stock quote service, in which a mobile phone service company transmits updated stock

quotes to subscribers. The stock quotes are received by the subscriber's handset and displayed on a screen embedded in the handset.

But offering information services does little to help a mobile phone service company distinguish itself from other companies, since information like stock quotes can be readily and freely obtained from other sources, such as the Internet. To distinguish itself from competitors, a mobile phone service company needs to make the subscriber's handset something more than a phone.

#### SUMMARY OF THE INVENTION

In accordance with this need, a method and system for facilitating a purchase of a good or a service is provided in which a transaction facilitation system is communicatively linked to a wireless user's provider and sends messages over a data channel to the wireless user that show up on the screen as part of a menu on the user's wireless device. The menu lists one or more goods or services that the wireless user may request at his convenience. In response to the user selecting an item from the menu, the wireless device creates a message, such as an SMS digital message, which represents the request. The wireless device then transmits the request back to the transaction facilitation system, which then sends a corresponding order for the good or service to a merchant who can fulfill the order. The order message may be sent to the merchant via wireless data channel or by a wired network link, such as a wide-area network. The user may then, for example, pick up the good or receive the service.

The merchant receives the order at a merchant terminal, and may have the option to decline the order. If the order is declined, the merchant terminal may send a message representing the declination back to the facilitation system. The facilitation system may then notify the user via that the order cannot be processed.

The facilitation system may, in processing a request message, check to see whether the user has enough funds available to purchase the good or service. For example, the facilitation system may perform a check of the user's prepaid debit account. If the account has insufficient funds, the system may send a message to the user inquiring as to whether the user would like to replenish the debit account from his credit card. The facilitation system may also charge the user's credit card directly.

The wireless user may preconfigure goods or services to be purchased in the future by logging on to a web site that is operated by the facilitation system, and defining a "hotlist." A hotlist may contain descriptions of goods and service that the user can order. Once a hotlist good or service has been defined and added, a corresponding menu item may be transmitted to the user's wireless device. Thus, when the user wants to order the good or service with the options that were selected at the web site, he need only select the corresponding menu item on the wireless device, and a preformatted request for the good or service is transmitted. The functionality of the web site may also be achieved with an interactive voice response system or with a live customer service representative.

The facilitation system may also send wireless coupons to the user's wireless device. Each wireless coupon may represent an offer for a good or service from a vendor. The offer may also include an offer for a discount on the purchase price of the good or service. The user's wireless device may indicate the arrival of a wireless coupon by showing a "yes or no" prompt, thus allowing the user to accept or decline the offer immediately.

The facilitation system may also monitor media outlets for a predefined event, such as an advertisement, and in response to detecting the predefined event, send offers to the wireless device for the purchase of certain goods or services. For example, the facilitation system may monitor a media outlet for the broadcast of a popular song, and, upon detecting such a broadcast, set up an order for the CD that the wireless user can initiate with the push of a button. Alternatively, the facilitation system may "push" a wireless message to the wireless device that prompts the user to purchase the CD.

The menu items, wireless coupons, and event messages described above may be tailored to the wireless user's current location, which can be obtained from the wireless service through known methods. For example, if it is determined that the user is in New York city, then the user's hottest menu on the wireless device may be altered so that the user may request goods or services from New York city locations. The order messages generated by the facilitation system may also reflect this. Similarly, wireless coupons for nearby restaurants may be sent to the user.

Additional features and advantages of the invention will be made apparent from the following detailed description of illustrative embodiments, which proceeds with reference to the accompanying figures.

#### BRIEF DESCRIPTION OF THE DRAWINGS

While the appended claims set forth the features of the present invention with particularity, the invention, together with its objects and advantages, may be best understood from the following detailed description taken in conjunction with the accompanying drawings of which.

FIGURE 1 is a flow diagram depicting the overall flow of data in accordance with the preferred embodiment of the invention;

FIG. 2 is an elevated view of an embodiment of a wireless device;

FIG. 3 is an elevated view of an embodiment of a merchant terminal;

FIG. 4 is a block diagram of the public section of an embodiment of the facilitation system;

FIG. 5 is a block diagram of the private section of an embodiment of the facilitation system;

FIGS. 6-15 illustrate an embodiment of a web-based interface that allows a user to preconfigure orders for goods and services;

FIGS. 16-17 are a flowchart generally illustrating a sequence of steps that may be followed in facilitating a purchase according to an embodiment of the invention;

FIGS. 18-19 are a block diagram illustrating an optional feature of an embodiment of the invention; and

FIG. 20 is a block diagram illustrating another optional feature of an embodiment of the invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, the invention is generally realized as a transaction facilitation system 10 which facilitates the purchase of a good or a service by a wireless subscriber or user 12 having a wireless device 13, from a merchant 14 having a merchant terminal 15, by cooperating with a wireless service provider 16 to send, receive, and process wireless messages representative of the transactions involved in the purchase, to and from the wireless device 13. The wireless service provider 16 may be a personal communications system (PCS), cellular service, satellite network, paging carrier and the like.

In accordance with the preferred embodiment of the invention, the wireless provider 16 communicates with the wireless device 13, and the facilitation system 10 over a first data path 18, and a second data path 20 respectively. The facilitation system 10 communicates with the merchant terminal 15 over a third data path 22. The first data path 18 is generally a wireless data path, and as such may include microwave relays, transmission sites, satellites, and the like, but may also include one or more land-based links. The second data path 20 and the third data path 22 each may be a wireless data path or a land-based path, such as a dial-up modem link, the Internet, Digital Subscriber Line (DSL), Asynchronous Transfer Mode (ATM) lines, a Virtual Private Network (VPN) and the like. If the third data path 22 is a wireless link, it may utilize the wireless service 16, as shown by the dashed line 22a. It is contemplated that the second data path 20 may be a local area network (LAN) link to the wireless service 16. It is also contemplated that the facilitation system 10 may be co-located with a part of the

wireless network 16, such as at a mobile telephone switching office (MTSO).

Referring to FIG. 2, the wireless device 13 is depicted as a hand-held portable phone having an earpiece 202, a display 204, a keypad 206, and a mouthpiece 208. As is conventional, the wireless device 13 may be programmed to interact with a user through a menu 210 utilizing the display 204 and the keypad 206. The menu of the wireless device may show only one item at a time or may show multiple items. The user may select the currently displayed or currently selected item by pressing a select button. Selecting an item may cause the wireless device 13 to perform a certain action such as sending a preformatted message, or it may open a sub-menu. The user may also scroll up or down to other items by pressing an up button or a down button respectively. The wireless device 13 may also be capable of receiving text messages and notifying the user that a message has been received by audible tone, vibration, or a special symbol on the display 204. The user may then choose to view the message by pressing a message button. It is understood that the specific items listed in the menu 210 and the layout of the menu 210 are meant to be exemplary only.

The tools used to program the wireless device 13 depend on its brand. For example, if the wireless device 13 is a NOKIA brand portable telephone, it will run a proprietary operating system and can be programmed using a NOKIA-supplied compiler. The menu may be programmed according to a well-known wireless interface program, such as the UNWIRED PLANET microbrowser by UNWIRED PLANET (a.k.a. PHONE.COM). Another wireless browser that may be used is WIG by AU SYSTEMS.

When implemented according to the well-known GSM standard, the wireless device 13 may have a SIM module (not shown) that can be programmed using a SIM APPLICATION TOOLKIT provided by the SIM manufacturer. Generally, a SIM APPLICATION TOOLKIT complies with the well-known ETSI GSM standard. The menu 210 may also be reprogrammed remotely over first data path 18 by sending a message having a special designator and a series of program instructions to the wireless device 13.

The merchant terminal 15 (FIG. 1) may be any computing device programmed in accordance with the invention, but a PALM handheld computer by 3COM is known to be suitable. FIG. 3 shows a PALM handheld computer by 3 COM having a modem (not shown), a display screen 302, and an attached label printer 304 for printing out a sticky label 306. As is conventional, the PALM handheld computer runs the i5 "PalmOS" operating system, and can be programmed using such tools as "CodeWarrior" by METROWERKS, or the GNU compiler. The merchant terminal 15 may be located in a relatively fixed location, such as a coffee shop, or be mobile.

Likewise, the merchant 15 may or may not have a fixed "place of business," and may, in fact be roaming vendor, such as a taxi cab driver, whose place of business moves with him. Additionally, the merchant terminal 15 may be a device that also performs other functions unrelated to the invention.

The terminal 15 includes a home button for displaying the current order on the screen 302, an order log button for displaying a log of orders received, an accept button for accepting a received order, an up button for scrolling up on the display, and a down button for scrolling down on the display.

Referring to FIGS. 1 and 2, the facilitation system 10 and the wireless device 12 may send and receive messages to one another via the second data path 20, through the wireless service 16, and the first data path 18 using one or more data channels provided by the wireless service 16. Examples of data channels

that may be used to carry the messages include a GSM Short Message Service (SMS) channel, Cellular Digital Packet Data (CDPD) channel, CDMA channel, TDMA channel and a standard 9600 baud modem channel. In cases where the data channel is unsecure (for example, SMS) an method of securing the messages is preferred.

To transmit a menu of orderable goods and services to the wireless device 13, the facilitation system 10 sends a message over the second data path 20, through the wireless service 16 and over the first data path 18. When received by the wireless device 13, the message reprograms the wireless device 13 to display the menu to the wireless user 12 and to react to the user's selection. Some preliminary programming of the wireless device 13 may also have been performed at the wireless service 16 or the facilitation system IO, however.

To generate a request for an item, the wireless user 12 selects the item (good or service) from the menu 210 using the keypad 206, thereby causing the wireless device 13 to create a message that is representative of the selection. The message may contain an identifier usable by the wireless service 16 to provide the message to the facilitation system IO. For example, an SMS message may contain the mobile ID (NM) of another wireless device at the facilitation system and a CDPD message may contain the IP address of the facilitation system 10.

The wireless device 13 transmits the selection message back through the first data path 18, through the wireless service 16 and to the facilitation system 10. The facilitation system IO processes the request as described below and sends a message 20 representative of an order for the item to the merchant terminal 15 via the third data path 22. The merchant terminal 15 may then react to the arrival of the order message by generating a signal, such as audible or visual signal, to alert the merchant 14. The merchant 14 then fulfills the transaction by making the good or service available for the wireless user 13.

Referring to FIGS. 4 and 5, the facilitation system 10 includes one or more computers, such as "gateways" or "servers" for performing the functions of the invention. Although the term "server" is used, it is not meant to be limited to computers which establish a server-client relationship with one another. In fact, each of the "servers" described herein may, in fact, be operate as clients or peers as well.

30 Typically, a computer or "server" accomplishes tasks by executing instructions.

Generally, the instructions cause the computer to manipulate data to achieve a desired result. It is contemplated that the servers may communicate with one another using a cross-platform protocol such as Common Object Request Broker Architecture (CORBA) in order to allow the servers to have a variety of different hardware and software configurations.

In the description that follows, the term "module" will be used in reference to the routines, programs, objects, components, data structures, executable code, Dynamic-linked libraries (DLLs) etc. that will be used to perform certain tasks or implement certain abstract data types in accordance with the invention. Although grouping the various tasks of the facilitation system 10 into modules is helpful in understanding the invention, the modules shown in FIGS. 4 and 5, as well as the servers on which they are depicted as being executed, are meant to be exemplary only.

Furthermore, it is understood that a module may be stored in any type of computerreadable medium prior to, during, or after execution by a computer. Types of computer-readable media include a hard disk, floppy disk, optical disk, magnetic cassette, flash memory card, digital video disks, Bernoulli

cartridge, random access memory, read only memory, cache memory, registers, and the like.

In further accordance with the preferred embodiment of the invention, the facilitation system 10 is divided into a public section 24 (FIG. 4) and a private section 26 (FIG. 5). Access to the public section 24 is limited by a first firewall 80 which filters out incoming and outgoing transmissions according to well known criteria, such as the IP address from which the transmissions originate, the protocol being used, and the destination port of the transmission. The public section 24 comprises a merchant terminal server 28, a subscriber handset server 29 and a web server 58. These servers communicate over a network link 90, which may have a variety of different architectures, including Ethernet, USB, 1394 and the like, and may be arranged in a number of different topologies, including serial, ring, star and the like.

The modules that execute on the merchant terminal server 28 include a merchant operations module 30 for providing support to the merchants during transactions, an order status module 32 for keeping track of the status of outstanding orders and allowing the merchant 14 or the wireless user 12 to determine the status of an order, a catalog administration module 34 to allow the merchant 14 or the wireless user 12 to view and update a catalog of orderable goods and services, and a merchant account administration module 36 for allowing the merchant 14 to update its account information. The modules that execute on the subscriber handset server 29 include an order interface module 38 that leads the wireless user 12 through the steps necessary to order a good or service from the merchant 14, a subscriber account module 42 that allows the wireless user 12 to update the information about his user account, and a hotlist interface module 60 for allowing the user to create predefined purchase requests for goods for services that may be ordered in the future. Finally, a web user interface (UI) module 81 executes on the web server 58 for interacting with the user to receive the user's input via the internet and display responses and status information.

For converting wireless messages to a computer-usable format and vice versa, a Wireless-to-Internet Gateway 91 may also be provided in the public section 24. There are many ways of implementing the Wireless-to-Internet Gateway 91. In one implementation, the Wireless Application Protocol (WAP) standard may be used. If the wireless service 16 is a paging service, the gateway 91 may be a type of paging-to-Internet gateway could be used. For example, the gateway 91 might translate MOTOROLA FLEX paging messages to network format and vice versa.

If communication with the wireless device 13 or the merchant terminal 15 occurs over an SMS channel, the Gateway 91 may have a wireless device 59 coupled to it. The Gateway 91 would convert SMS messages received over the wireless device 59 into a standard networking format (such as TCP/IP) and vice versa. Alternatively, the Gateway 91 may be at the SMS center of the wireless service provider 16, in which case the SMS message might contain a MID that the wireless service 16 would recognize as being intended for the facilitation system 10. The SMS message might then be converted by the wireless service 16 and sent to the facilitation system 10 over a land network. The facilitation system 10 may also communicate with the merchant terminal 15 in this manner, with the Gateway 91 being located within the facilitation system 10 or at the wireless server provider 16 and the MID of the merchant terminal 15 being contained in an order message. Preferably, there would be some authentication scheme so that spurious SMS messages could not reach the merchant terminal 15.

There are also commercially available services that convert wireless messages into network messages and vice versa. An example is a service offered by UNWIRED PLANET (PHONE.COM) that converts wireless messages sent using the UNWIRED PLANET microbrowser into network format, such as TCP/IP.

When implemented using CDPD, an Wireless-to-Internet gateway is generally

provided by the wireless carrier 16, and the wireless device 13, the facilitation system IO, and the merchant terminal 15 may communicate with one another using CDPD and Internet IP addresses. The wireless carrier 16 would then be responsible for making the necessary Wireless-to-Internet conversions.

Referring to FIG. 5, access to the private section 26 of the facilitation system 10 is limited by a second firewall 82 which filters incoming and outgoing transmissions according to well known methods and also according to a set of permitted transactions in order to monitor and regulate the data traveling between the components of the public section 24 and the private section 26 and to regulate access to a subscriber database 50, a merchant account database 52, a catalog database 54, a transaction log 48, and a hotlist database 56. The private section 26 comprises a merchant back office server 44, a business rule server 46, and a credit card server 88, which communicate with one another over the network link 90.

The business rule server 46 executes a business rule module 47 to intercept all messages and transactions received from the public section 24 and process them according to a set of business rules in order to cause the facilitation system IO to respond appropriately. Preferably, these business rules are implemented according to the well-known object-oriented programming pattern "Model-View-Controller." The 'Model' is represented by the structure of the databases, while the 'Controller' is represented by the business rule module. The 'Views' are the way that the web server, the IVR, the merchant terminal server and the subscriber handset server display the Model data to the end user. The Controller (business rule module) controls how the Views interact with the Model - what information each View can access, what information each View can update. Furthermore, the Controller is preferably multithreaded so that it can spawn a number of threads in response to events. Each spawned thread might manipulate (create, read, update, delete) the Model. This allows, for example, multiple requests for good or services to be handled simultaneously.

The merchant back office server 44 executes a back office module 45 to provide transaction reports to the back office facilities of the merchant 14 over the private network 86 based on entries in a transaction database 48.

The private section 26 is linked for communication with a private network 86, and communicates over the private network 86 when performing transactions in which security is desired, such as communication with the merchant back office, and communication with a credit card gateway or financial network. The private network 86 may be a Virtual Private Network (VPN), and may include one or more dedicated lines.

The credit card server 88 executes a credit card module 89 that communicates with the private network 86 for the purpose of sending and receiving credit card transaction information, for example, to and from a financial network or bank. The credit card module 89 may reference the subscriber account database 50 to obtain credit card information regarding the wireless user 12. Additionally, the credit card module 89 may also handle non-credit card transactions, such as when the wireless user 12 chooses to use a prepaid account or to have funds deducted from his bank account.

The credit card server 88 may carry out required financial transactions in many ways. For example, the credit card server 88 may communicate with a commercial service such as CYBERCASH over the private network 86 and use a credit card gateway of the commercial service. When communicating directly with a banking network, a credit card gateway 94 located within the facilitation system 10 may be used, for example, to communicate over an X.25 link.

In accordance with an aspect of the invention, the credit card server 88 may process a payment by the wireless user 12 for a good or service ordered from the merchant 14. The payment can take many



different forms. For example, the wireless user 12 may have pre-paid balance or a line of credit, either of which may be enforced by the credit card server 88. The credit card server may also charge the user's credit card, or bill his account with the wireless service 16.

In accordance with another aspect of the invention, the wireless user 12 may establish and maintain a list of preferred goods and services that may be requested from the menu 210 (FIG. 2) of the wireless device 13. The list, hereinafter referred to as a "hotlist," may be stored on a hotlist database 56 to which access is regulated and monitored by the business rule module 47 of the business rule server 46. To establish a hotlist, the wireless user 12 may conventionally access a web site maintained on a web server 58, causing the web server 58 to execute the web UI module 81. The web UI module 81, in cooperation with the subscriber account module 42, prompts the wireless user 12 for basic information, such as his address, preferred mode of payment, credit i o card information, etc. The web UI module 81 may also prompt the wireless user 12 to comply with an authentication scheme, such as by choosing a username and password, using a public key encryption technology to produce a digital signature, or asking the user to submit a digitized fingerprint via the wireless device 13. The subscriber account module 42 relays the information entered by the wireless user 12 to the business rule module 47, which stores the information in the subscriber account database 50 (FIG. 5).

The web UI module 81 may, in cooperation with the hotlist interface module 60, then present the wireless user 12 with a list goods and/or services from which to choose. The wireless user 12 may choose one or more items from the list. In some cases, the web UI module 81 may present the user with further choices in response to the initial choices. For example, if one of the items in the list is "coffee," and the wireless user 12 chooses to add coffee to his hotlist, then the web UI module 81 may display a web page that allows the wireless user 12 to choose what kind of coffee he likes - e.g. mocha with cream and double sugar. The hotlist interface module 60 then relays wireless user's choices are then relayed to the business rule module 47, which stores them in the hotlist database 56.

To update a hotlist that he has already established, the wireless user 12 may log on to the web site of the web server 58 and attempt to authenticate (e.g. by submitting a user name and password via the web UI module 81). The subscriber account module 30 42 then relays the authentication data to the business rule module 47, which looks up the wireless user 12 in the subscriber account database 50 to authenticate him. If the wireless user 12 is authenticated, the business rule module 47 then retrieves the hotlist belonging from the wireless user 12 from the hotlist database 56 and transmits the hotlist to the hotlist interface module 60. In cooperation with the web UI module 81, the hotlist interface module 60 will then display the wireless user's hotlist and asks the wireless user 12 whether he wants to add or delete an item.

If the wireless user 12 wants to add an item then the hotlist interface module 60 follows the corresponding steps of the previous procedure. If the wireless user wishes to delete an item, the hotlist interface module 60 asks the user to choose and item to delete. In response to the choice, the interface module 60 transmits the deletion to the business rule module 47, which performs the deletion from the hotlist database 56.

Additionally, the wireless user 12 may establish and maintain his hotlist by contacting a customer service representative (CSR) via phone, wireless phone, or similar means.

The CSR then accesses the hotlist interface module 60 through a customer service computer (not shown) and establishes or maintains the hotlist based on the user's instructions.

As an alternative to accessing the web server 58, the wireless user 12 may update his hotlist by calling

an interactive voice response (IVR) system 62 via telephone, wireless phone, or similar means. The IVR system 62 interacts with the business rule module 47 to authenticate the wireless user 12 as described above with respect to the hotlist interface module 60. The business rule module 47 retrieves the user's hotlist from the hotlist database 56 and transmits it to the IVR system 62. The IVR system 62 then gives the wireless user 12 a series of phone menu choices which can be used to add or delete an item from the hotlist. The IVR system 62 relays the results of the IVR session to the business rule module 47, which responds by making the appropriate updates to the hotlist database 56.

As another alternative to accessing the web server 58, the wireless user 12 may update his hotlist "on the fly" using the wireless device 13. The wireless device 13 may present a series of menus on the display 204 (FIG. 2) that allow the user to choose and customize goods and services for future order. The menu may be small and simpler than those shown on the web server 58. It is contemplated that the user interfaces of the wireless device 13 the web server 58, and the IVR system 62 may each have its own object-oriented "view" or presentation, but all be based on a common "model" and "controller".

In accordance with another aspect of the invention, the business rule module 47 may automatically charge the wireless user 12 for a purchase made from the merchant 14. In order to accomplish this for a wireless user, the business rule module 47 references the subscriber account database 50 to determine what form of payment the wireless user 12 prefers to use as well as the appropriate payment information, such as the wireless user's credit card number or the account number of wireless user's prepaid account. The business rule module 47 then transmits the payment information to the io credit card module 89 on the credit card server 88. The credit card module then transmits a message representing the requested transaction to a financial service, such as CYBERCASH, over the private network 86 and awaits approval for the purchase. If an approval is received from the financial service, then the business rule module 47 transmits a message representing an order for the requested item to the merchant terminal 15 via the third data path 22. Alternatively, the business rule module 47 may transmit a message over the second data path 20 to the wireless service provider 16 indicating the charge incurred by the subscriber, and the charge may be incorporated into the service provider's monthly bill to the wireless user 12.

The invention is further illustrated by way of example. It is assumed in this 20 example that the wireless user 12 is a rush-hour commuter who begins his morning routine by parking in a parking lot, searching his pockets for the correct change, and putting the money in the appropriate slot in the payment box. The wireless user then waits in line at a coffee shop to purchase coffee prior to entering the building in which he works. Instead of having to go through this routine every morning, the wireless user may instead access a web site on the web server 58 (FIG. 4) to invoke the hotlist editor module 60, to preconfigure these purchases. If the wireless user 12 is a first-time user of the facilitation system 10, then he may be required to register as described above, choosing a username, password, entering credit card data, etc. The wireless user 12 is then given a list of goods and services from which to choose. For the purpose of this 30 example, it is assumed that the wireless user 12 chooses to add the coffee shop to his hotlist, preselects two types of coffee using the hotlist editor module 60 - (1) a cafe mocha and (2) a house blend with cream and double sugar, and adds them to his hotlist.

The wireless user then chooses to add the parking lot to the hotlist as well. The hotlist is then stored in the hotlist database 56 (FIG. 5). Once the hotlist is established, the facilitation system IO will regularly provide a message representing the hotlist to the wireless device 13.

To provide the hotlist to the wireless device 13, the business rule module 47 locates the hotlist corresponding to the wireless user 12 in the hotlist database 56. The business rule module 47 then sends the hotlist to the order interface module 37 on the subscriber handset server 29. The order interface module 37 then reformats the hotlist io as a message, such as an SMS message, and transmits it to the

wireless service 16 over the second data path 20. The wireless service 16 then transmits the SMS message to the wireless device 13 over the first data path 12.

The wireless device 13 receives the SMS message representing the hotlist and incorporates it into the menu 210 (FIG. 2). The hotlist may appear on the main portion 15 of the menu 210 or it may be on sub-menu that is accessible from the main menu. For the purpose of this example, it is assumed that the wireless user 12 is in his car waiting at a traffic light. The wireless user may decide to go ahead and purchase time at the parking lot and order his coffee from the coffee shop. The wireless user 12 may then select the parking lot from the menu 210, thereby causing the wireless device 13 to transmit a message representative of the selection back along the first data path 18 to the wireless service 16. The wireless service 16 then passes this message back to the facilitation system IO.

The order interface module 38 on subscriber handset server 29 receives the selection message from the wireless service 16 and determines the identity of the wireless user 14 by examining an identifier in the selection message. The MID is also known by its French abbreviation MSISDN. When the invention is implemented in a GSM environment, the identifier is a mobile ID (MID) corresponding to the user.

When implemented so that the wireless device 13 is running the UNWIRED PLANET browser, the identifier is a proprietary MID. The order interface module 38 will pass the message to the business rule module 47. The business rule module 47 will look up the account of the user 14 by in the subscriber account database 50. The business rule module 47 will determine whether the user is authorized to make this purchase based on the information in the user's account. If the user 14 is authorized to make this purchase, the business rule module will look up the user's payment information in the subscriber account module 50 and send a message representative of the purchase via the private network 86 to a financial service, or if the user chooses to have the purchase billed to his wireless service account at the wireless service 16, the business rule module 47 may store the details of the purchase in the transaction log 48 for accounting purposes.

To provide feedback to the subscriber, the order interface module may then send a confirmation message to the subscriber via the second data path 20, the wireless service 16, and the first data path 18 in response to the receipt of the selection message.

The confirmation message may also give the subscriber the option to cancel the purchase. The subscriber may also have the option to configure his service so that no purchase confirmation messages are sent.

The order interface module 38 relays the selection message to the business rule module 47. The business rule module 47 looks up the wireless user 12 in the subscriber account database 50 to determine the method of payment being used, and transmits a message representing a request for payment approval to a financial service over the private network 86. If approval is received, the business rule module 47 transmits the order for the parking lot time to the merchant operations module 30 on the merchant terminal server 28. The merchant terminal server 28 then creates a message representing the approved order and transmits the message to the merchant terminal 15 via the third data path 22. The wireless service 16 then relays the message to a merchant terminal 15 being carried by a parking lot attendant who periodically monitors the parking lot. The merchant terminal 15 may show the transaction on the screen 302, and indicate the license plate number of the user 12. The merchant terminal may then store a record of the transaction in its memory.

The wireless user 12 may then select a mocha grande coffee from the menu. A message representing the selection will then be sent by the wireless device 13 to the facilitation system IO as described above.

The facilitation system IO then charges the user's credit card, prepaid account, or wireless service account, as described above.

Once the transaction has been approved, the facilitation system 10 sends a message representing the order to the merchant terminal 15 at the coffee shop via the third data path 22. The merchant terminal 15 processes the message to display the wireless user's order on the screen 302 (FIG. 3). The merchant terminal 15 may also generate an audible signal. The information displayed on the merchant terminal 15 may include an order number and a screen name for the wireless user 12. The screen name may be the wireless user's real name or a pseudonym chosen by the wireless user 12. If the merchant terminal 15 is equipped with a label maker, a label can be generated for placement on the wireless user's coffee cup. Additionally, the coffee shop can transmit a response message to acknowledge receipt of the order, for example, from the merchant terminal 15 to the facilitation system 10 via the third data path 22. The facilitation system relays the response message to the wireless device 13 via the second data path 20, the wireless service 16, and the first data path 18.

During the day, the parking lot attendant may discover that the wireless user's car has exceeded the time period for which the wireless user 12 has paid. The parking lot attendant may then send a message to the facilitation system IO via the third data path 22 to indicate that the user's time has expired. The facilitation system IO may then send a message to the wireless device 13 to indicate this fact to the wireless user 12, and to give the wireless user 12 the option to purchase more time. The wireless user 12 may then purchase more time in the same manner described above with respect to the original purchase. Alternatively, the facilitation system 10 may keep track of the time and send the message to the wireless user 12 via the second data path 20, the wireless service 16 and the first data path 18, without the involvement of the parking lot attendant.

An embodiment of a web based interface that may be used for the hotlist interface module 60 will now be shown and described. After logging on to the web server, the user may be presented with a scroll down menu showing which items are presently on his hotlist. As shown in FIG. 6 the user currently has two items on his hotlist: a tall latte and a mocha. If the user wishes to ADD an item to his hotlist he presses the add button and proceeds to the next page shown in FIG. 7. On this next page, the user can choose the good or service he wishes to add to the hotlist. In this example, the user may choose from one of two coffee shops, a parking lot, and a taxi company. It will be assumed that the user has chosen Joe's Coffee House. The hotlist interface module 60 then presents the web page of FIG. 8 to the user. This web page represents the selection of hot drinks that may be purchased from Joe's Coffee House.

A submenu indicates to the user colds drinks and food are also available from Joe's Coffee House. A selection area allows the user to choose which hot drink he would like to add to the hotlist while an option area allows the user to choose options for the item such as size and type of milk to be included in the coffee. In this example, it will be assumed that the user has chosen a 12 oz. latte with one shot of espresso, 2 percent low milk, no cream and no flavoring.

Once the user finalizes his selection, such as by pressing the NEXT button the web page shown in FIG. 9 is displayed. On this page, the user sees the charge for the item and is prompted to enter an alias for the item. The hotlist interface module 60 offers the user a default alias, but the user is free to use any name that he feels will be meaningful. The user may indicate completion by activating the DONE button. The user then returned to the initial hotlist page, and the most recently added item will appear at the bottom of the hotlist as shown in FIG. 10. To further illustrate the user interface, FIG. 11 shows an example selection page for cold drinks while FIG. 12 shows an example selection menu for food. FIGS. 13 - 14 show an example of the selection and addition of plain bagel to the user's hotlist. In an embodiment of the invention, the user may also maintain his prepaid debit account via the web Interface.

An example of how this is accomplished is shown in FIG. 15.

Operation of the facilitation system IO (FIGS. 1, 4-5) in accordance with a more specific embodiment of the invention will now be described. As previously discussed, the facilitation system IO communicates with the wireless device 13 over data paths 18 and 20, and communicates with the merchant terminal 15 over the data path 22a or the data path 22. Messages passing through the wireless service provider 16 on data paths 20 and 22a may be sent from the facilitation system 10 over a primarily land based link, such as the Internet, or via wireless link. In an embodiment of the invention, the facilitation system IO has a Wireless Internet Gateway 91 coupled to a GSM compliant wireless device. The Gateway 91 monitors the wireless device for inbound SMS messages.

When received by the Gateway 91, inbound wireless messages are passed on to the business rule module 47 of the business rule server 46 (FIG. 5). The business rule module 47 parses each message to determine the MIN and message type. If the message is a request from a user, such as the user 12 of FIG. 1, the business rule module 47 starts a request cycle, which may involve a series of message exchanges with the wireless device 13 and with the merchant terminal 15. The business rule module preferably reacts to a new request by spawning a new thread, and adding the thread to a queue. The thread may then manage the request throughout its lifetime.

In processing a request thread, the business rule module 47 may check for exceptional conditions that prevent a purchase of a good or a service from being completed, hereinafter referred to as "exceptions." In accordance with an embodiment of the invention, the types of exceptions recognized by the business rule module include funds exceptions, merchant exceptions, and process exceptions. A funds exception occurs whenever the user lacks sufficient funds to purchase the requested good or service. This may be determined from looking up the status of the user's debit account, or by attempting to get authorization to charge the user's credit card, for example.

Merchant exceptions are conditions that are specified by a merchant, either through interaction with the merchant terminal server 28 or by calling a CSP. An example of a merchant exception would be that a requested good or service is out-of-stock or unavailable, or is not available with the options specified by the user. The business rule module may determine this by, for example, looking up the ordered good or Service by ID number in the catalog database 57 to see if it listed as such. If any of the items or options is unavailable then a status message is created and sent to the user on the wireless device 13. An example of such a status message is: "Order cannot be fulfilled. Cherry muffins are out-of-stock. Please make another selection or contact the call center to change your order."

A process exception is one that occurs when a search of the merchant profile database 52 reveals a condition that prevents an order from being processed. For example, if an order is for a merchant that has not signed up with the facilitation service, an exception is raised. Another exception would be if the order is outside the merchant's normal business hours. Process exceptions cause a status message to be created and sent to the user. A typical status message is: "Order cannot be fulfilled."

The merchant is not a member. Please make another selection or contact the call center."

Messages sent in furtherance of the communication can have a variety of formats. In one embodiment of the invention, each message is an SMS message comprising a 256-byte carrier string. The carrier string includes a header having a 12 byte Mobile Identification Number (NW for identifying the user, and a 140-byte text message string. Some examples of possible message types and formats include those shown and described below in Table 1.

Table I

## Request Message

Message Type 3 bytes

= 001

Orderable Object

ID (e.g. index number) 2 bytes

Undefined 135 bytes

Total Length 140 bytes

Sender User

Receiver Facilitation system

Description: Represents a user's request for the purchase of a good or a service.

Example: 00108

## Receipt Message

Timestamp 19 bytes in form mm/dd/yyyy hh:mm:ss

Host Title 55 bytes

Merchant Name 50 bytes

Price Paid 12 bytes

in form Sxxxxxxx.xx, where

S is currency symbol (e.g.

Field Separators 4 bytes

Total Length 140 bytes

Sender Facilitation system

Receiver user

Description: This is an electronic receipt for user. It may also include such things as a transaction identification number (ID), a merchant ED, and the merchant location

Example 01/05/2000 18:32#Dbl Tall Latte#Joe's 025#\$8.40

Overview Message

Message Type 3 bytes

= 007

Message String 137 bytes.

Total Length 140 bytes

Sender Facilitation system

Receiver user

Description A question that requires a YES or NO response.

Example 007Your Wireless Blvd account has insufficient funds.

Should \$ 10 be transferred from your VISA card?

User Response Message

Message Type 3 bytes

= 002 for YES

= 003 for NO

Undefined 137 bytes

Total Length 140 bytes

Sender subscriber

Receiver: Facilitation system

Description: A user's response to a query message.

Example: 002

Order Message

Transaction ID 256 bytes max

Price Paid 256 bytes max

Gratuity 256 bytes max

No. of LineItems 256 bytes max

LineItem1 256 bytes max

LineItem2 256 bytes max

LineItemn 256 bytes max

Sender Facilitation system

Receiver merchant

Total length varies

Description: An order formulated by the facilitation system in response to a request received from a user. A description of the product may be included among the line items.

Example: 1010 3747-1002

8.40

0.50

2

1#double tall latte#2#shotvanilla#1#shot caramel

Mblueberry muffin

Merchant Response Message

Message Type 3 bytes

= 005 for ACCEPT

= 006 for REJECT

Orderable UUID 22 bytes

Undefined 137 bytes

Total Length 140 bytes

Sender subscriber: 002 & 003

Merchant: 005 & 006

Receiver: Facilitation system

Description: A merchant's response to an order message.

Example: 005SEABELLE00710912890001

Status Message

Message Type 3 bytes

= 004

Message String 137 bytes.

Total Length 140 bytes

Sender Facilitation system

Receiver user or merchant

Description: A message that informs the user or the merchant of the Status of an order.

Example 004Your order is ready for pickup.

Referring to FIGS. 16-17, the procedure followed by the facilitation system in processing a request for the purchase of a good or a service according to an embodiment of the invention will now be described. At the beginning of the process the facilitation system receives the request from the user at the gateway

91 (FIG. 4).

At step 340, the gateway 91 sends the request to the subscriber hand set server 29 for initial processing by the order interface module 38. At step 342, the order interface module 38 parses the request to extract the MIN and orderable object ID, which may be implemented as an index number, and passes these numbers to the business rule server 46 (FIG. 5) for further processing by the business rule module 47. At step 344, the business rule module 47 looks up the user in the subscriber account database 50, using the user's MIN as a reference.

At step 346, the business rule module 47 retrieves the user's hotlist from the hotlist database 56, using the MIN as an index. At step 348, the business rule module 47 locates the entry in the user's hotlist corresponding to the orderable index number extracted from the request. From the entry, the business rule module 47 determines the catalog number of the item or service ordered as well as which options, if any, are to be applied to the item or service. Using the catalog number as an index, the business rule module 47 locates the entry in the catalog database 54 that corresponds to the item or service at step 348. From the catalog database entry, the business rule module 47 determines the cost of the item or service, including any options specified in the hotlist entry.

At step 352, the business rule module 47 retrieves the user's account information from the subscriber account database 50. The business rule module 47 examines the retrieved account information to determine the user's chosen payment option at step 354. This option will have already been set up by the user, either through the web server 58, or by speaking to a CSP at the call center. If the user has opted to use a debit account, then the flow proceeds to step 356, at which the business rule module 47 determines whether there are sufficient funds in the user's debit account. If there are sufficient funds, then the flow proceeds to step 366. If there are not sufficient funds then the flow proceeds to step 358.

At step 358, the order interface module 38 sends a query to the user, asking the user whether or not he wants to replenish his debit account using his credit card. If the user indicates that he wishes to add value to his debit account then the flow proceeds to step 360 at which the credit card module 89 interfaces with the private network 86 to request authorization to charge the user's credit card. This may be accomplished by, for example, using a service such as CYBERCASH. If the charge is authorized, then the flow returns to step 356. If not, then the flow proceeds to step 362. The flow also proceeds to step 362 if the user indicates that he does not wish to replenish his debit account. At step 362, the order interface module 38 sends a status message to the user, such as "Sorry, insufficient funds - Please contact the call center to complete your order request." The process then ends. Furthermore, if the user does not respond with the time-out period, then the flow proceeds to step 362, at which a message such as "Order cancelled - No response received within IO minute time out period" is sent to the user.

If the user has sufficient funds in his account at step 356 then the flow proceeds to step 366. If the user has chosen the credit card option, then from step 354, the flow proceeds to step 364 at which the credit card module 89 requests authorization to charge the user's credit card over the private network 86. Again, this may be accomplished using a service such as CYBERCASH. If the service indicates that the user has insufficient credit available for the purchase, then the flow proceeds to step 362 at which a status message is sent to the user indicating that he has insufficient funds available. If the charge is authorized, then the flow proceeds to step 366.

At step 366, the business rule module 47 determines whether there are any merchant exceptions. If there are one or more merchant exceptions then the flow proceeds to step 362 at which the order interface module 38 sends a status message to the user indicating that the transaction has failed. The process then ends. If there are no merchant exceptions then the flow proceeds to step 370 at which the



business rule module 47 determines whether there are any process exceptions. If there are then the flow proceeds to step 362. If there are not then the flow proceeds to step 372 at which the business rule module 47 generates a transaction identification number. The flow then proceeds to step 374 at which the order interface module sends an order message to the merchant terminal.

From step 374, the flow proceeds to step 376 (FIG. 17) at which the merchant may either accept or reject the order at the merchant terminal. If the merchant rejects the order then the flow proceeds to step 378 at which the order interface module 38 sends a status message to the wireless device 13 indicating that the transaction cannot be completed. For example, if the merchant is "Joe's Coffee House," the message might read "Sorry, Joe's is unable to complete your order. Please make another selection or contact the call center." The process then ends after step 378.

If the merchant accepts the order at step 376, then the flow proceeds to step 380 at which the credit card module 89 charges the user's account over the private network 86. The flow then proceeds to step 382 at which the order interface module 38 sends a receipt message to the user. Process then ends after step 382.

If the merchant fails to respond to the order at step 376 within a time-out period, then the flow proceeds to steps 384 and 386, at which messages are sent to both the wireless device 13 and the merchant terminal 15. The message sent to the user on the wireless device 13 informs the user that the transaction has failed. For example, if the order was sent to "Joe's Coffee House," the message may read "Sorry, your order cannot be fulfilled. Joe's did not respond to your request. Please make another selection or contact the call center." The message sent to the merchant on the merchant terminal 15 informs the merchant that the order has been canceled. Continuing with the previous example, the status message sent to "Joe's Coffee House" upon timeout may read "Cancel order - transaction ED JOES012345678901 due to time-out during confirmation."

In accordance with an optional feature of the invention, the facilitation system 10 (FIG. 1) may have the ability to send wireless coupons to the wireless user 12. A wireless coupon provides a way for a merchant to advertise goods or services. The coupon may be created by the merchant as part of an advertising campaign, and sent to one or more groups of wireless users based on their demographic profiles. When a user receives a wireless coupon, a notification may appear on the user's wireless device. The user may be given the option to redeem the coupon immediately or to save the coupon for later use. The user may also be given the option to place a call to a message system that plays a prerecorded audio ad describing the product or service to which the coupon applies.

In an embodiment of the invention, each wireless coupon is a 256 byte SMS message having a content portion of 140 bytes. The content portion may include a coupon ID code, the name of the merchant who is to redeem the coupon, a description of the benefits of the coupon, the terms and conditions under which the coupon may be redeemed, and its expiration date. When a wireless coupon is sent to the user, it may be accompanied by a query message that asks the user whether he wants to redeem the coupon. The wireless device sends the appropriate response message to the facilitation system according to the user's choice (e.g. YES or NO). The wireless device may also generate a dedicated "coupon" messages when the user redeems a coupon. A dedicated coupon message may be formatted like the previously described request message, and may be appropriate for situations in which a YES/NO response is not called for, such as when the user selects a previously saved coupon from the wireless device menu.

When the facilitations system 10 receives a message indicating that the user wishes to redeem a coupon, it may send the appropriate order message to the merchant.

The message may include the wireless coupon message as a line item in the order message, or as a separate message. As previously described, the merchant may have the option to accept or decline the order. If the order is declined, the facilitation system may send the appropriate status message to the user.

The wireless user may indicate which wireless coupons he wishes to receive by logging onto the web server 58 (FIG. 4) and filling out a web form. The web form may also require the user to enter demographic information such as income, gender, as well as purchasing habits. Using the web server 58, the user may, for example, choose the types of products and services for which he is to receive coupons by specifying one or more "coupon channels." There may be, for example, a "beverage channel" for receiving beverage coupons and a "food channel" for receiving food coupons. The user may also select which merchants from whom he wishes to receive coupons, or may select which merchants from whom he wishes to "block" the receipt of coupons.

Referring to FIGS. 18-19, additional components that may be incorporated into the facilitation system to allow for the use of wireless coupons is shown. These components include a coupon database 51 for storing wireless coupons for eventual transmission to users, a scheduler module 31 for keeping track of when coupons are to be sent to users, a coupon dispatch module 33 for delivering coupons to users, a demographic database 53 for storing user demographic information, and a data miner module 57 for analyzing the demographic database 53 to create custom address lists for participating merchants. The scheduler module 31 and coupon dispatch module 33 are depicted as executing on the merchant terminal server 28, while the data miner module is depicted as executing on the business rule server 46. Other configurations are contemplated, however.

The coupon dispatch module 33 cooperates with the scheduler module 31 to deliver, at the appropriate times, one or more wireless coupons in the appropriate format to each of the wireless devices specified in an address list. The dispatch module 33 has incoming and outgoing queues. The incoming queue temporarily holds wireless coupons that the scheduler module 31 has sent to the dispatch module for sending out to users at the appropriate time, while the outgoing queue holds messages that are about to be transmitted. The scheduler module 33 may assign priority levels to the wireless coupons, including high priority for immediate dispatch, and standard priority for scheduled dispatch.

The dispatch module 33 may also regulate the delivery of wireless coupons, for example, to limit the usage of the wireless carrier resources (such as bandwidth), to limit the number of coupons a user receives in a given period, and to make sure that users do not receive coupons from merchants who are on their "block" lists. After sending a wireless coupon, the dispatch module 33 may confirm to the scheduler module that the coupon was actually sent to the user's wireless device, and may record the fact in a log.

According to another optional feature of the invention, the facilitation system 10 (FIG. 1) may also monitor communication media (such as TV or radio) and give the user 12 the option to purchase a good or service that has some relationship to the content being broadcast on the media. This may be accomplished in coordination with the media outlet itself as well as with the advertiser. The facilitation system may simply wait for a user initiated action to place the order, or it may actively push an advertising message to the user. For example, the user may be driving in his car and listening to his favorite radio station. A song or an advertisement for a song that the user enjoys may be broadcast on the radio. In accordance with this optional feature, the user 12 selects a menu item on his wireless device 13 to order the compact disk having the song. The wireless device sends a request message to the facilitation system 10. The facilitation system 10 examines the timestamp of the request and a code identifying the radio station. Because the facilitation system had been monitoring the content being

broadcast on the radio station, it knows which CD is being requested.

In a similar scenario, the user may be at home watching TV and see a product being advertised. The facilitation system may send a query message to the user's wireless device to give the user the option to purchase the item, or possibly to have the wireless device automatically dial up a voice message that gives more details about the item.

As described above in the context of wireless coupons, a wireless user may indicate which types of "media events" (commercials, song plays, shows, etc.) for which he wishes to receive messages by logging onto the web server 58 (FIG. 4) and filling out a form. The web form may also require the user to enter demographic information such as income and gender as well as purchasing habits. The user may, for example, choose the types of products and services for which he is to receive media event messages by specifying one or more "wireless co-channels." There may be, for example, a co-channel for a particular radio station, or for a type of product that is potentially advertised on several radio stations. The user may also select merchants from which he wishes to receive media event messages, or may select advertisers from whom he wishes to block the receipt of such messages.

Referring to FIG. 20, additional components that may be used to allow the facilitation system to have this optional feature is shown. The private section 26 of the facilitation system of FIG. 20 includes a media server 91 having a feed reception module 96 for converting a media feed from its broadcast format (radio, TV, etc.) to a digital signal; a remote data acquisition module 95 for processing the digital signal; a feed processing module 93 for fingerprinting the incoming media signals; and a real-time Correlation module 97 for comparing the fingerprints from the feed processing module 93 with fingerprint information stored in an audio fingerprint database 98 and generating the appropriate messages to be sent to the user.

In an embodiment of the invention, the feed reception module 96, converts an incoming media signal into a digital signal and provides it to the remote data acquisition module 95. The remote data acquisition module performs a Fourier Transform on the digital signal to determine the sound spectrum over a short period of time. This period of time may be adjusted according to the granularity desired. The remote data acquisition module 95 then provides the resulting sound spectrum to the feed processing module 93. The feed processing module 93 fingerprints the sound spectrum and sends the resulting fingerprint to the real-time correlation module 97.

The real-time acceleration module 97 searches the audio fingerprint database 98. If there is a match with between the fingerprint and a fingerprint in the database 98, then the correlation module 97 references the matching fingerprint to determine what predefined media event has occurred. An example of a predefined media event is the broadcast of an advertisement for a CD from "IRS records." The feed processing module then generates a message to be sent to one or more media co-channels.

According to yet another optional feature of the invention, the facilitation system 10 (FIG. 1) may obtain the current geographic location of the wireless device 13 from the wireless service provider 16 and use this information to further facilitate the purchase of a good or service. Wireless providers currently have the ability to determine the location of an in-network wireless device accurately enough to map to a zip code or to a latitude. It is anticipated that the accuracy will increase to a three yard radius with new 911 technology. For example, the facilitation system can determine in which zip code the wireless device 13 (and presumably the user 12) is located, reference the merchant profile database 52 (FIG. 5) to determine which coffee shops are located in that zip code, and send wireless messages to the wireless device 13 that appear as menu items, for coffee on the user's hotlist. The user may then purchase coffee from the nearby shops as previously described.

. The determined location of the wireless device may also be used to tailor the dissemination of wireless coupons as well. For example, the facilitator system IO may determine that a user is right next to a newly opened restaurant, and based on this determination, send the user a wireless coupon for it along with an invitation to dine there.

It can be seen from the foregoing description that a novel method and system of facilitating a purchase has been provided. In view of the many possible embodiments to which the principles of this invention may be applied, it should be recognized that the embodiment described herein with respect to the drawing figures is meant to be illustrative only and should not be taken as limiting the scope of invention. For example, those of skill in the art will recognize that the elements of the illustrated embodiment shown in software may be implemented in hardware and vice versa or that the illustrated embodiment can be modified in arrangement and detail without departing from the spirit of the invention. Therefore, the invention as described herein contemplates all such embodiments as may come within the scope of the following claims and equivalents thereof

**Claim:**

I . A method for facilitating a purchase by a user of a hand-held wireless device, the method comprising:  
displaying on a hand-held wireless device a menu item representing a good previously selected by the user for possible purchase; and,  
in response to the user selecting the menu item, sending a wireless data message representing a request for the purchase of the good.

2 The method of claim 1, wherein the good is one of a plurality of goods previously selected for possible purchase by the user, and the displaying step further comprises displaying a menu comprising a plurality of items, wherein each item represents at least one of the plurality of goods.

3 . The method of one of claims 1 or 2, further comprising receiving a wireless data message representing a menu comprising the menu item.

4 The method of claim 1, wherein the wireless data message is an SMS message.

5 The method of one of claims 1, 2 or 4, wherein the wireless data message is a text based message.

6 The method of one of claims 1, 2, 4 or 5, wherein the message comprises a type field for indicating that the message is a request message and an object ID for indicating which previously selected good of a plurality of previously selected goods is represented by the message.

7 The method of one of claims 1, 2, 4, 5 or 6, wherein the good represented by the menu item is a food or beverage, and the wireless data message represents a request for the food or beverage.

. The method of one of claims 1, 2, 4, 5 or 6, wherein the good represented by the menu item is a coffee drink that has been previously customized by the user, and the wireless data message represents a request for the coffee drink.

9 The method of one of claims 1, 2, 4, 5 or 6, wherein the good represented by the menu item is a bagel that has been previously customized by the user, and the

wireless data message represents a request for the bagel.

10 The method of one of claims 1, 2, 4, 5 or 6, wherein the good is represented by the menu item is a pastry that has been previously customized by the user, and the wireless data message represents a request for the pastry.

11 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 1 to 10.

12 A method for facilitating the purchase by a user of a hand-held wireless device, the method comprising:  
displaying on a hand-held wireless device a menu item representing a service previously selected by the user for possible purchase; and,  
in response to the user selecting the menu item, sending a wireless data message representing a request for the service.

13 The method of claim 12, wherein the service is one of a plurality of services previously selected for possible purchase by the user, and the displaying step further comprises displaying a menu comprising a plurality of items, wherein each item represents at least one of the plurality of services.

14 The method of claim 12, further comprising receiving a wireless data message representing a menu comprising the menu item.  
. The method of one of claims 12 or 13, wherein the wireless data message is an SMS message.

16 The method of one of claims 12, 13 or 14, wherein the wireless data message comprises a type field for indicating that the message is a request message and an index number for indicating which service of a plurality of previously selected services is represented by the message.

17 The method of one of claims 12, 13, 14 or 16, wherein the service represented by the menu item is a taxi service that has been previously customized by the user, and the wireless data message represents a request for the taxi service.

18 The method one of claims 12, 13, 14 or 16, wherein the service represented by the menu item is a parking lot service that has been previously customized by the user, and the wireless data message represents a request for the parking lot service.

19 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 12 to 18.

20 A method for facilitating a purchase, the method comprising:  
receiving a first data message from a wireless service, the first data message representing a request for a good or a service from a user of the wireless service, the good or service having been previously selected by the user for possible purchase; and, in response to receiving the first data message, sending a second data message representing an order for the good or service to a vendor terminal so that the order can be filled.

21 The method of claim 20, wherein the first data message comprises an

• object ED, the method further comprising:  
in response to receiving the first data message, referencing a list that identifies at least one previously selected good or service;  
using the object ID to determine which good or service identified on the list is the subject of the request; and,  
creating the second data message based on that determination.

22 The method of one of claims 20 or 21, further comprising:  
in response to receiving the first data message, referencing a database to determine whether the good or service is available; and,  
if the requested good or service is determined not to be available, sending a wireless data message to the user indicating that the request cannot be fulfilled.

23 The method of one of claims 20 to 22, further comprising:  
in response to receiving the first data message, referencing a database to determine whether a debit account of the user has sufficient funds to purchase the good or service; and,  
if the debit account is determined not to have sufficient funds, sending a third data message to the user via the wireless service indicating that the request cannot be fulfilled.

24 The method of one of claims 20 to 23, further comprising:  
sending a fourth data message to the user via the wireless service asking whether the user wishes to add funds to debit account; and,  
if the user indicates that the user wishes to add funds to the debit account, requesting authorization from a credit card service to charge a credit card of the user for the funds to be added.

25 The method of one of claims 20 to 24, further comprising:  
in response to receiving the first data message, contacting a credit network to determine whether the user has sufficient credit to purchase the good or service; and, if the user is determined not to have sufficient credit, sending a third data message to the user via the wireless service indicating that the request cannot be fulfilled.

26 The method of one of claims 20, 21, 22, 23 or 25, further comprising:  
receiving a third data message from the vendor terminal indicating that the order represented by the second data message has been rejected; and,  
in response to receiving the third data message, sending a fourth data message to the user via the wireless service indicating that request cannot be fulfilled.

27 The method of one of claims 20 to 26, wherein the first data message is received over a network link to the mobile phone service.

28 The method of one of claims 20 to 27, wherein the second data message is sent via a mobile phone service.

29 The method of one of claims 20 to 27, wherein the second data message is sent via a land-based network link to the vendor.

30 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 20 to 29.

31 A method for facilitating a purchase, the method comprising:  
displaying on a hand-held wireless device a menu item representing the good that is available from a vendor; and,  
in response to the user selecting the menu item, sending a wireless data message representing a request for the purchase of the good and for subsequent pickup of the good at the vendor's place of business.

32 The method of claim 31, wherein the vendor provides carry-out food and beverages and the good is a carry-out food or beverage.

33 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 31 or 32.

34 A method for facilitating a purchase for a mobile phone user, the method comprising:  
on a mobile phone having a display, receiving a first wireless data message representing a menu item, the menu item representing a previously selected good or service;  
displaying the menu item to the user on the display; and,  
in response to the user selecting the menu item, sending a wireless data message representing a request for the good or service.

35 The method of claim 34, wherein the wireless data message is an SMS message.

36 The method of one of claims 34 or 35, wherein the wireless device is a cellular phone.

37 A computer-readable medium having stored thereon computer-executable instructions for performing the method of claim one of claims 34 to 36.

38 A method for facilitating a purchase, the method comprising:  
receiving from a user at least one selection of a good or a service for future purchase; and,  
sending a message to a mobile phone of the user to create a menu item on a display of the mobile phone, wherein the menu item is selectable by the user to generate a request for the good or service.

39 The method of claim 38, further comprising determining the geographic location of the hand-held wireless device;  
based on the determination, choosing a vendor location for purchase of the selected good or service; and,  
incorporating the vendor location into the message so that, when the menu item is selected, the request is adapted to be fulfilled at the vendor location.

40 The method of one of claims 38 or 39, wherein the user selection is received via a web site.

41 The method of one of claims 38 or 39, wherein the user selection is received via an interactive voice response system.

42 The method of one of claims 38 to 41, further comprising receiving from the user at least one selection of an option to be applied to the selected good or service, wherein the menu item is selectable

by the user to generate a request for the good or service with the option applied.

43 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 38 to 42.

44 A method for facilitating a purchase, the method comprising:  
receiving a first data message from a wireless service, the first data message representing a request by a wireless user for the purchase of a good, the first data message having originated from a hand-held wireless device in communication with the wireless service, the hand-held wireless device being operated by the wireless user;  
and,  
in response to receiving the first data message, sending a second data message to a vendor of the good, the second data message representing an order for the purchase of the good and for subsequent pick-up of the good by the wireless user at the vendor's place of business.

45 The method of claim 44, wherein the vendor is a vendor of take-out food and beverages, and the good is a take-out food or beverage.

46 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 44 or 45.

47 A method for facilitating a purchase, the method comprising:  
receiving a first data message from a wireless service, the first data message representing a request for a good, the first data message having originated from a hand-held wireless device in communication with the wireless service; and,  
in response to receiving the first data message, sending a second data message to a vendor of the good, the message representing an order for the purchase of the good and for subsequent shipment to a user of the hand-held wireless device.

48 A computer-readable medium having stored thereon computer-executable instructions for performing the method of claim 47.

49 A web page user interface comprising:  
a list having at least one entry for an orderable good or service selectable by a user;  
an entry field for allowing the user to select options for the orderable good or service; and,  
a button for causing a menu item representing the orderable good or service along with any selected options to be sent to a hand-held wireless device of the user.

50 The user interface of claim 49, wherein the orderable good or service is selected from the group consisting of a food item, a beverage, a taxi service or a parking lot service.

51 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 49 or 50.

. A method for facilitating a purchase of a good or service by a mobile phone user, the method comprising:  
receiving a first data message from the user's mobile phone;  
referencing a list of goods or services previously selected by the user to determine which good or service the user wishes to purchase; and,



sending a second data message representing an order for the good or service to a vendor to be filled.

53 A computer-readable medium having stored thereon computer-executable instructions for performing the method of claim 52.

54 A system for facilitating a purchase, the system comprising:  
a database having data representing a good or service preselected by hand-held wireless device user for possible purchase;  
a first module for receiving a wireless data message representing a request for the purchase of the good or service from the wireless device;  
a second module for determining whether the request represented by the data message can be fulfilled; and,  
a third data module for sending a message to a merchant terminal for fulfillment of the request when the second module determines that the request can be fulfilled.

55 The system of claim 54, further comprising a web server for allowing the user to preselect goods or services for future purchase by the user via the hand-held wireless device.

56 A method for facilitating a purchase, the method comprising:  
sending a first data message representing an offer for the purchase of a good or a service to a hand-held wireless device; and,  
in response to receiving a second data message from the hand-held wireless device indicating that the user of the hand-held wireless device has accepted the offer, sending a third data message representing an order for the good or service to a vendor of the good or service for fulfillment by the vendor.

57 The method of claim 56, wherein the offer represents a coupon usable in the purchase of the good or service.

58 The method of one of claims claim 56 or 57, further comprising  
determining the geographic location of the hand-held wireless device, based on the determination, customizing the offer represented by the first data message.

59 The method of one of claims 56 to 58, further comprising:  
monitoring a media broadcast; and,  
synchronizing the time and content of the first data message with the broadcast.

60 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 56 to 59.

61 A method for facilitating a purchase, the method comprising:  
monitoring a media broadcast;  
receiving a wireless data message from a hand-held wireless device  
indicating the user's desire to purchase a good or service;  
correlating the time of the order with content of the broadcast to  
determine the good or service the user to order, and;  
sending an order message for the good or service to provider of the good or service.

62 The method of claim 61, wherein the hand-held wireless device is

cellular phone.

63 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 61 or 62.

64 A method for receiving advertising information, the method comprising:  
on a mobile phone having a display, receiving a wireless data message representing an advertisement for a good or a service;  
displaying the advertisement on the display;  
prompting the user to obtain additional information about the good or service;  
and,  
in response to the user indicating a desire to obtain additional information, automatically dialing a phone number to connect to a messaging system having voice information regarding the good or service.

65 A computer-readable medium having stored thereon computer-executable instructions for performing the method of claim 64.

66 A method for facilitating the purchase of a food or beverage, the method comprising:  
receiving a first data message from a hand-held wireless device, the first data message representing a request for an order of food or beverage; and,  
in response to receiving the first data message, sending a second data message to a vendor of the food or beverage, the second message representing the order for the food or beverage.

67 The method of claim 66, wherein the hand-held wireless device is a mobile phone.

68 The method of one of claims 66 or 67, further comprising:  
in response to receiving the first message, determining the identity of the user of the wireless device;  
referencing a list associated with the user, the list containing one or more preconfigured food or beverage orders;  
determining which preconfigured food or beverage order on the list is being requested, wherein the second data message represents the requested preconfigured food or beverage order.

69 A computer-readable medium having stored thereon computer-executable instructions for performing the method of one of claims 66 to 68.

70 A system for enabling a cellular customer to make purchases, the system comprising:  
a hand-held cellular device for displaying a menu having entries representing orderable goods or services to the cellular customer and, in response to the customer's selection of an entry, sending a message representing a request for the purchase of the good or service;  
a facilitation system for receiving the request message from the cellular device and, in response thereto, sending a message representing an order for the good or service to a vendor of the good or service, the facilitation system including a web server for allowing the user to preselect the good or service for future purchase; and, a merchant terminal located at the vendors place of business for receiving the order message, and, in response thereto, notifying the vendor of the order.

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